

CLAIMS

What is claimed is:

1. 1. A system for configuring an automatic test system to produce a plurality of clocks from a reference clock via dividers coupled to the reference clock, comprising:
 3. an interface having a plurality of inputs for specifying desired frequencies of the plurality of clocks; and
 5. software, operative in response to the interface, for calculating values of dividers, 6. for establishing the desired frequencies of the plurality of clocks.
1. 2. A system as recited in claim 1, wherein the interface comprises at least one input for specifying the frequency of at least one of the plurality of clocks as a function of at least one other of the plurality of clocks.
1. 3. A system as recited in claim 1, wherein the interface comprises inputs for specifying timing characteristics of instruments of the test system.
1. 4. A system as recited in claim 3, further comprising error checking code for comparing the specified timing characteristics of the instruments with stored data indicative of capabilities of the instruments.
1. 5. A system as recited in claim 4, wherein the interface further includes a window for displaying error messages generated by the error checking code in response to the specified timing characteristics being incompatible with the capabilities of the instruments.
1. 6. A system as recited in claim 3, further comprising code for calculating the desired frequency of at least one of the plurality of clocks in response to the inputted timing characteristics of the instruments.

1 7. A system as recited in claim 1, wherein
2 the software produces output indicative of the calculated values of said dividers,
3 and
4 the interface further comprises a display of the calculated values of said dividers.

1 8. A system as recited in claim 7, wherein the interface further comprises a display
2 of prime factors of the calculated values of said dividers.

1 9. A system as recited in claim 1, wherein the interface further comprises inputs for
2 assigning different ones of the plurality of clocks to groups within which coherency must
3 be maintained.

1 10. A method for configuring an automatic test system to produce a plurality of
2 clocks from a reference clock, comprising:
3 receiving a plurality of inputs specifying desired frequencies of the plurality of
4 clocks; and
5 calculating, in response to the received inputs, values of dividers coupled to the
6 reference clock, for establishing the desired frequencies of the plurality of clocks.

1 11. A method as recited in claim 10, further comprising specifying the desired
2 frequency of at least one of the plurality of clocks as a function of at least one other of the
3 plurality of clocks.

1 12. A method as recited in claim 10, further comprising specifying timing
2 characteristics of at least one instrument of a test system.

1 13. A method as recited in claim 10, wherein the timing characteristics include any of
2 an instrument's sampling rate, frequency of interest, frequency divider values, frequency
3 multiplier values, and frequency resolution.

1 14. A method as recited in claim 13, wherein the inputs for specifying timing
2 characteristics include at least one input for specifying an instrument's sampling rate as a
3 function of a timing characteristic of another instrument.

1 15. A method as recited in claim 13, wherein the inputs for specifying timing
2 characteristics include at least one input for specifying an instrument's frequency of
3 interest as a function of a timing characteristic of another instrument.

1 16. A method as recited in claim 13, wherein the inputs for specifying timing
2 characteristics include at least one input for specifying an instrument's frequency
3 resolution as a function of a timing characteristic of another instrument.

1 17. A method as recited in claim 12, further comprising comparing the specified
2 timing characteristics for an instrument with stored data indicative of capabilities of the
3 instrument.

1 18. A method as recited in claim 17, further including displaying error messages
2 generated by the comparing step, in response to the specified timing characteristics being
3 incompatible with the capabilities of the instrument.

1 19. A method as recited in claim 13, further comprising calculating a desired clock
2 frequency for driving an instrument based upon the inputted timing characteristics for
3 that instrument.

1 20. A method as recited in claim 10, further comprising displaying output indicative
2 of calculated values of said dividers.

1 21. A method as recited in claim 20, further comprising displaying prime factors of
2 the calculated values of said dividers.

1 22. A method as recited in claim 10, wherein desired clock frequencies are related by
2 ratios that ensure coherent testing, and further comprising modifying the desired clock
3 frequencies to precisely maintain the ratios, in instances wherein the test system cannot
4 meet the inputted ratios at the desired frequencies.

1 23. A method as recited in claim 22, further comprising:
2 assigning different ones of the plurality of clocks to groups, and
3 modifying the desired frequencies of clocks assigned to the same group to
4 precisely maintain the inputted ratios between clock frequencies in the same group.

1 24. A method as recited in claim 10, wherein the receiving step includes receiving an
2 input for each of the desired frequencies in the form of a rational numerator divided by a
3 rational denominator.

1 25. A method as recited in claim 10, further comprising generating test program code
2 for programming the plurality of dividers within the automatic test system to assume the
3 calculated values.

1 26. A method as recited in claim 25, further comprising storing the test program code
2 in a test program for running on the automatic test system.

1 27. An automatic test system, comprising:
2 a reference clock;
3 a plurality of dividers coupled to the reference clock, for generating a plurality of
4 clocks derived from the reference clock;
5 a user interface having a plurality of inputs for specifying desired frequencies of
6 the plurality of clocks; and
7 software, operative in response to the user interface, for calculating values of the
8 plurality of dividers to establish each of the desired clock frequencies from the reference
9 clock.

1 28. An automatic test system as recited in claim 27, further comprising configuration
2 generating code, operative in response to the user interface, for generating test program
3 code for configuring the plurality of dividers within the automatic test system to assume
4 the calculated values.

1 29. A method of testing a device under test (DUT) in an automatic test system having
2 a reference clock and a plurality of dividers for deriving a plurality of clocks from the
3 reference clock, comprising:

4 receiving a plurality of inputs for specifying desired frequencies of the plurality of
5 clocks;

6 calculating, in response to receiving the plurality of inputs, values of the dividers
7 for establishing each of the desired clock frequencies;

8 configuring the plurality of dividers to supply the desired clock frequencies;

9 applying a signal to the DUT under control of a first of the plurality of clocks;

10 sampling a signal from the DUT under control of a second of the plurality of
11 clocks; and

12 comparing sampled values with expected values to determine whether the DUT
13 passes or fails.